

INFO-HAMS Digest

Thu, 21 Dec 89

Volume 89 : Issue 1055

Today's Topics:

ARRL NR 91: HF DATA FILING  
pudgy wound helical antenna (60m vertical in my living room!)  
QST misinformation...  
W1AW: Computer-generated QRM ?

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Date: 21 Dec 89 05:00:47 GMT

From: samsung!cs.utexas.edu!asuvax!stjhmc!f1.n234.z1.fidonet.org!  
Jim.Grubs@zaphod.mps.ohio-state.edu,  
Subject: ARRL NR 91: HF DATA FILING  
Message-ID: <9960.2590EF49@stjhmc.fidonet.org>

> Message-ID: <1385@n8emr.UUCP>  
>  
> ARRL BULLETIN 91 (ARLB091) 12/15/89  
>  
> ON DECEMBER 12, ARRL COUNSEL CHRIS IMTAY, N3AKD, FILED A PETITION  
> FOR RULE MAKING WITH FCC SEEKING THE ADOPTION OF RULES TO PERMIT  
> LIMITED HF RTTY AND DATA COMMUNICATION UNDER AUTOMATIC CONTROL.

Bravo!! Thanks for the good news.

73 de W8GRT

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Uucp: ...{gatech,ames,rutgers}!ncar!asuvax!stjhmc!234!1!Jim.Grubs,.W8GRT  
Internet: Jim.Grubs,.W8GRT@f1.n234.z1.fidonet.org

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Date: 22 Dec 89 01:38:29 GMT

From: ems@apple.com (Mike Smith)  
Subject: pudgy wound helical antenna (60m vertical in my living room!)  
Message-ID: <5937@internal.Apple.COM>

In article <1260015@hpmwt1b.HP.COM> timb@hpmwtd.HP.COM (Tim Bagwell) writes:  
>> Yes it is possible to resonate out the capacitive reactance of the short  
antenna  
>> by a lumped or distributed inductance but what you end up with is usually a  
>> very small radiation resistance! This means that the ratio of radiation  
>> resistance to "ohmic" resistance drops and you loose your power to heat.  
>> In ship board MF antennas the radiation resistance is often less than a ohm!  
>> (Moral of the story: Use thick wire or tube for short antennas!)

>

>True and another reason why a small diameter helical antenna is worse than  
>a simple vertical of comparable height and wire size.

Ah, but by how much is it worse?

Ummm, but I'm not transmitting. Im, well, umm, one of those SWL folks who like to listen .... Since efficiency isn't as important as SN ratio for a receiver why do I care? Yeah, I will have a little less signal, but that isn't nearly as much of a problem as finding a place to put up a 31 meter (or 60 meter!) vertical ...

Per The ARRL Antenna Book page 6-18 heading 'Short Helically Wound Vertical Antennas'

Shortened quarter-wavelength vertical antennas can be made by forming a helix on a long cylindrical insulator. The diameter of the helix must be very small in terms of wavelength in order to prevent the antenna from radiating in the axial mode. Acceptable form diameters for HF-band operations are from 1 inch to 10 inches when the practical aspects of antenna construction are considered.

Looks to me like 4" diameter is in the reasonable range. The diameter should be small in terms of wavelength, so I would expect that for a 31 meter band antenna even using a 1 meter diameter would be OK; though with some increased tendency for 'high angle radiation' as the mode of radiation starts to shift from broadside to axial. Though it does say 'very small' so maybe 1/30th isn't very small...

And further on:

No strict rule has been established concerning how short a helically wound vertical can be before a significant drop in performance is experienced. As a general recommendation, one should use the greatest amount of length consistent with available space. A guideline might be to maintain an element length of 0.05 wavelength or more for antennas which are electrically a quarter wavelength long. Thus, use 13 feet or more of stock for an 80-meter antenna, 7 feet for 40 meters, and so on.

This works out to 5 feet for a 31 meter antenna, so a 4 foot length should still be OK unless there is some profound non-linearity that isn't mentioned... Though I must admit that adding a loading coil to it for use on 60 meters was clearly a bit of whimsy and would be subject to loading coil losses. (But it was fun, though!)

and:

No specific rule exists concerning the size or type of wire one should use in making a helix. Larger wire sizes are, or course, preferable in the interest of minimizing  $I^2R$  losses in the system. For power levels up to 1000 watts it is wise to use a wire size of no. 16 or larger.

Since I'm using it as a recieving antenna I don't have much 'I' to square and I would expect that no. 16 wire would be serious overkill. It doesn't look like copper tubing is needed.

They then go on to discuss the use of an L network to match the low impedance (which they say is on the order of 5 ohms - I still need to figure out how to properly measure mine with the antenna bridge...) and show a practical antenna design for 7 MHz with 2:1 SWR over 50 kHz. (NOT pudgy wound though...).

(There is also the mention of using helically wound ground plane elements for the counterpoise, but that is another discussion)

In summary, I don't contest your observations; they are quite true. The numbers need to be looked at to see if they are important.

I think that the above quotes are evidence that, with a matching network, the effects you describe are not significant for an antenna used for recieving the 31 meter band that is 4 feet long and 4" in diameter; and are probably not important for transmitting if no. 16 or larger wire were used.

What do you think? Have I missed something in my interpretation of what they have presented as fact? Are their rules of thumb off base?

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E. Michael Smith ems@apple.COM

'Whatever you can do, or dream you can, begin it. Boldness has genius, power and magic in it.' - Goethe

I am not responsible nor is anyone else. Everything is disclaimed.

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Date: 21 Dec 89 14:43:44 GMT

From: zaphod.mps.ohio-state.edu!usc!cs.utexas.edu!asuvox!stjhmc!  
f670.n142.z1.fidonet.org!Luck.Hurder@tut.cis.ohio-state.edu (Luck Hurder)

Subject: QST misinformation...  
Message-ID: <9961.2590EF50@stjhmc.fidonet.org>

All de KY1T:

There's a bit of misinformation going around that I'd like to set straight, folks. A USENET user (?), perhaps N8DGN, I can't be sure, has been saying the following here on the echo:

> They (the ARRL) are now changing their tune where microwave  
> coverage in QST is concerned. It is not acceptable to  
> ENTIRELY DROP microwave coverage from QST as they have  
> done.

QST has done no such thing. They have merely dropped one column. They fully intend to continue publishing any and all acceptable articles regarding microwave that come their way.

> I wasn't asking for the ARRL to increase their microwave  
> coverage, just to include some in QST

Which is precisely what they are doing...

> Paul Rinaldo, who is the editor of QST, made the decision  
> to CUT ALL microwave coverage

False. Wrong. Uh-uh, no way. This guy isn't reading the letter that Paul wrote very well...

> I cannot accept his decision to TOTALLY CUT  
> ALL microwave coverage.

Hey, I wouldn't accept that either, if I were an ARRL member, which I am. Fact is, no such decision was made.

Once again - QST will publish articles that relate to microwave activity as they always have done, provided that the articles make it through the article-review process that all authors must endure, and provided that the articles meet the normal standards. Those standards, by the way, appear in the January issue of QST for all to see. No secrets here, simply normal, every-day public knowledge..

To put things in a different light for a second, I could squack up a storm too, if I so chose. The same financial dilemma that forced the microwave column to go that-a-way was also responsible for my Public Service column to be cut by a whole page every month. Public Service, traffic handling, and such were -- by the way -- the things that the ARRL were FOUNDED on. If I

were to run around screaming that QST had dropped coverage of public service activities, I'd be laughed out of the office! Particularly with a FIVE pager coming up in the February issue relating to the public service efforts of the many hundreds of amateurs during the aftermath of Hurricane Hugo.

Enough soapbox. 73 de KY1T

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Uucp: ...{gatech,ames,rutgers}!ncar!asuvax!stjhm!142!670!Luck.Hurder  
Internet: Luck.Hurder@f670.n142.z1.fidonet.org

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Date: 21 Dec 89 23:01:29 GMT  
From: hpl-opus!hpnmrla!alanb@hplabs.hp.com (Alan Bloom)  
Subject: W1AW: Computer-generated QRM ?  
Message-ID: <1250103@hpnmrla.HP.COM>

Perry Scott asked why W1W doesn't listen before they transmit bulletins and code practice. I was a W1AW operator many years ago, so perhaps I can reply.

The problem is that they transmit on all ham bands 160 thru 2 meters simultaneously. It would take an army of operators to listen to each frequency before each transmission. They switch between CW RTTY and phone frequencies dozens of times each day to maintain the published schedule, so you can see the impracticality of listening on each freq.

The other problem is what to do if the frequency is in use. If the users refuse to move, you either have to transmit on top of them (which could be construed as intentional interference, a violation of the rules) or try to change frequency. The latter option would make it difficult for W1AW's listeners to find the station when needed.

The times and frequencies are published in advance. I realize not too many of us have the W1AW schedule memorized, but many/most CW operators are aware of the W1AW frequencies and try to avoid them. On phone, the bulletins only take a few minutes to send, so the interference is minimized. I am of the opinion that not too many people listen to W1AW bulletins on phone anyway, so ARRL should just eliminate them.

Al N1AL

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End of INFO-HAMS Digest V89 Issue #1055  
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